

Improved in-wheel, near-wheel and direct-drive electric motors for cars and other vehicles. This motor can be cheaper, lighter, more powerful, more efficient, and more reliable than other direct-drive motors. Its high torque-density and high performance allow it to produce the same peak power as heavier, bigger motors. That helps greatly with the handling issues caused by too much unsprung mass. The motor control system can adapt to the vehicle's operating conditions (like starting, accelerating, turning, braking, and cruising at high speeds). That provides better performance. The motor's low-voltage, low-current design helps reduce heat and weight and leads to lower motor cost. The motor can still operate with some faults, offering "get home" capability. It offers all the benefits of in-wheel motors: efficiency, compactness, direct traction control, quiet, simple driveline. And it adds to those benefits, while reducing or eliminating the drawbacks other in-wheel motors.